

Scales smooth, with one apical pore-pit. Anal plate and subcaudals double.

This genus has head-shields arranged like those of *Rhegnops*, Cope, (Proc. Acad. Nat. Sci. Phil. 1866, 128), but the dentition is entirely distinct. It is nearer to *Tantilia* B. and G. but that genus does not present the edentulus characters, and exhibits a preocular instead of a loreal plate. The pupil is round. The general form is slender for a Calamari-nan serpent, and the tail is unusually elongate; the head is not distinct.

*Char. Specificus.* Scales in sixteen or seventeen rows. Labials 6-7, third and fourth in orbit. Two postorbitals; temporals, 1-2-3. Rostral broad, crescent shaped; internasals half as large as prefrontals. Frontal nearly triangular, with apex behind; anterior border strongly convex. Superciliaries sub-triangular, with short apex anterior. Occipitals elongate. Geneials one pair followed by a row of three scales. The tail measures between one-third and one-fourth of the total length, nearer one-third, but the only specimen now by me has the extremity mutilated. Gastrosteges, 216. Length of a specimen, 0m.220; other larger ones are not now before me.

Color, mouse-color above, white below, a pale spot on each nasal plate, and a dusky one on each side behind the rictus oris. From Chinandega, in the Occidental department, Nicaragua, discovered by J. H. McNiel. Several specimens were taken from a well, forty feet deep.

This species in scutellation and form of head is related to the Calamarinae, and it is doubtless a borrower, but its scale pores and long tail are exceptional features.

## CONTRIBUTION TO THE ICHTHYOLOGY OF THE MARAÑÓN.

(Read before the Amer. Phil. Soc. Aug. 19 1870.)

BY E. D. COPE, A. M.

### CHARACINIDÆ.

#### TETRAGONOPTERUS ORIENTALIS, Cope.

D. 11, A. 29; scales 7-37-8. The depth of the body one-half the length (without caudal fin); the head one-fourth of the same. Dorsal fin above a point a short distance behind the origin of the ventrals. Anterior anal rays not elongate. Diameter one-third length of head, 1.5 times in the convex interorbital width. The extremity of the mandible extends a little beyond the line of the anterior rim of the orbit. Pectoral extending a little beyond basis of ventrals. A broad silver band from upper opening of operculum to caudal, with a black spot near each end. Length 0.097 M.

From Para. Mus. J. Carson Brevoort.

#### TETRAGONOPTERUS STILBEE. Cope.

Depth contained 2.4 times in length (without caudal); length of head 3.5 times in the same. Radii, D. 11, A. 38, scales 8-39-10. Interorbital width equal that of eye, and one-third length of head. Dorsal

fin elevated, a little behind the line of the origin of the ventrals. The maxillary extends to near the line of the anterior margin of the orbit. The anterior radii of the anal fin are elongate. Total length .075 M. Length of anterior dorsal rays .018 M. ; length of anal rays .013 M.

A silver lateral band with a posthumeral and basal caudal spots, the former very distinct.

This species has much the shape of an *Abramis*; its form is deep, rather abruptly contracted at the extremities, and the supraoccipital region is slightly concave. Allied to the *T. abramis* of Jenyns.

Para. Mus. J. Carson Brevoort.

#### TETRAGONOPTERUS HAUXWELLIANUS. Cope.

Radii D. 11 ; A. 47 ; squamation 9-10-47-10-11. Depth of body 2.2 times in length, exclusive of caudal fin. Profile above concave ; end of muzzle convex. Interorbital width greater than diameter of orbit ; eye three times in head. No teeth on the maxillary, which extends only to the line of the anterior margin of the orbit. Caudal peduncle contracted. Color silver olive, with silver white band on side, and indistinct humeral and caudal spot. Total length .056 M.

This is a deep bodied species, with more than usually distinct lateral silver band. Its anal radii are more numerous than in any other species, except the *T. spilurus* C. V., which differs in having teeth on the maxillary bone, etc.

Dedicated to John Hauxwell, a successful naturalist and explorer, from whom most of the species here described were procured.

Pebas, Equador.

#### TETRAGONOPTERUS PECTINATUS. Cope.

Radii D. 10, A. 41 ; scales 4-5-41-6. Form elongate, fusiform, compressed ; depth into length without caudal 2.75 times ; length of head nearly four times in the same. Interorbital width equal diameter orbit ; diameter of eye one third length of head. Maxillary bone elongate, extending to below middle of pupil, furnished with minute teeth throughout the length of its anterior margin. Profile straight, convex between orbits, muzzle projecting beyond mandible. Dorsal rays prolonged ; anterior anals also moderately elongate. The origin of the dorsal is exactly over that of the anal.

A narrow silver green band on the posterior half the body ; no caudal spot ; humeral spot half way between lines of operculum and dorsal first ray. Total length .045 M.

This is a peculiar species, resembling technically only the *T. artedii* of Cuv. and Val. as described by Günther. This is a more elongate fish, with smaller eye, and other characters. The complete dentition of the maxillary bone is unusual in the genus.

From Pebas, Equador. Hauxwell's collections.

## HEMIGRAMMUS ROBUSTULUS. Cope.

Radii D. 10, A. 27; scales 7—35—6. Form deep compressed; length without caudal 2.25 times depth, and 3.5 times length of head. Profile straight, steeply descending to the obtuse muzzle. Interorbital width greater than diameter of orbit; eye one-third of head. Five stout but small teeth on the maxillary bone, which latter reaches to the line of the middle of the pupil, hence the gape of the open mouth is greater than in some other species. The dorsal fin is not so elevated as in some species of *Tetragonopterus*, and originates behind the line of the ventrals. The greatest elevation of the dorsal line is in advance of its origin. Sub-orbital bone large; mandible longer than muzzle.

Muzzle black; cheeks black punctate; body brown, a greenish lateral band with indistinct humeral and caudal spots. Middle of caudal fin blackish. Total length .051 M.; to origin ventrals .018 M.; to origin of anal .025 M.

This little Characin I refer to the genus *Hemigrammus* of Gill,\* because

\* Ann. Lyc. New York, 1858.

the lateral line is only half developed, extending in the present species to beneath the middle of the dorsal fin. The general form and dentition are stout. The gill rakers are elongate on the inferior, but sparse and short on the superior limb of the hyoid arches.

From Pebas, Equador. Numerous specimens from Hauxwell's collection.

## MYLETES LIPPINCOTTIANUS. Cope.

Radii D. 16, A. 39; lateral line 80. Depth of body two-thirds length without caudal; thus the form is discoid. Muzzle very obtuse; mandible longer. Orbit one-third of head, and 1.5 times into very convex inter-orbital region. Thirty-two ventral spines. Adipose fin two-thirds the length of the rayed dorsal; caudal with a very narrow sinus-like emargination above the middle of the edge. Ventrals not reaching vent, commencing a little in advance of the line of the first dorsal ray.

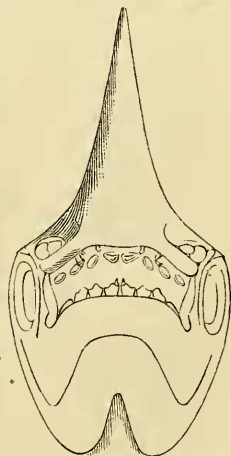
Color yellow silvery; dorsal region with steel reflections; a dusky spot above the middle of the pectoral on the lateral line.

The teeth of the external premaxillary series are very small, and in close contact with those of the second.

Length .112 M. to line of origin of anal .057; depth .068; do. of head at orbit .022 M.

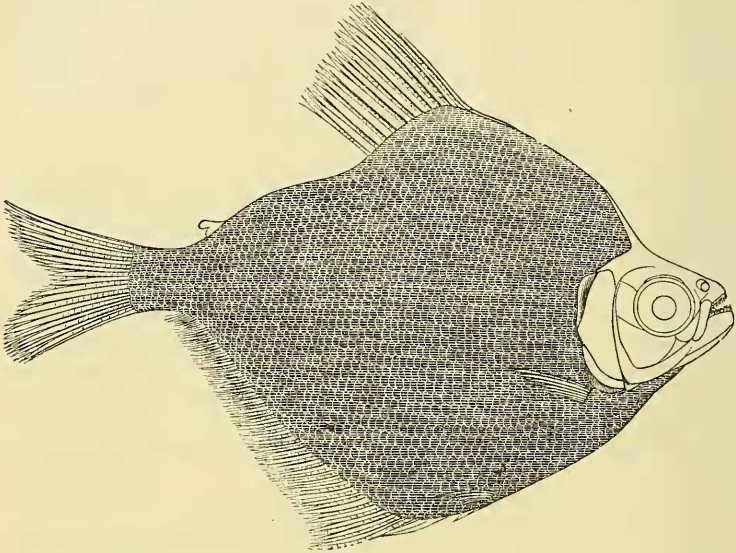
From Para, Brazil, J. C. Brevoort's collection.

Dedicated to my friend, James S. Lippincott, author of important contributions to Meteorology, Agriculture and other subjects.

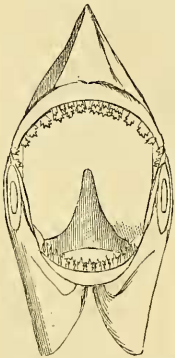


## STETHAPRION ERYTHROPS. Cope gen. et sp. nov.

*Character genericus.* Dorsal not elongate, anal prolonged. Premaxillary teeth compressed, lobed, in two rows; no maxillaries. Mandibulars lobed, without conic teeth posteriorly. No keel of spines on the ventral region. Branchial fissures extended.



This new genus displays most of the characters of *Mylesinus* Cuv. Val., but is entirely without the exposed ventral spines characteristic of that genus and of *Myletes*. The trenchant four-lobed molars of the posterior series differ entirely from those of *Myletes*; the dentition, indeed, is not very different from that of *Tetragonopterus*.



*Character specificus.* Radii; D. 12; A. 40; squamation 21—61—21. Form discoid, abdominal outline more convex than the dorsal, which is irregular. It is convex above the nape, descending along the base of the dorsal fin, convex in front of the adipose, and concave behind it. Depth 1.5 times in length without caudal, head 3.66 times in the same. Eye large, not quite equal to the diameter of the moderately convex interorbital space, 2.5 times in length of the head. The maxillary is elongate, and extends to the line of the anterior margin of the orbit. The denticulations of the teeth are apical, those of the mandibulars four or five in number. The outer teeth of the anterior premaxillary series small. Ventrals small, below the line of origin of the dorsal. Adipose fin small, caudal furcate. Anal fin narrow, not lobed, anterior radii moderately elongate.

Color silvery, anal fin dark edged; a brighter band on caudal peduncle, darker edged above. An indistinct postscapular spot. Total length .095 M. The color of the irides in the type specimen, which has not been very long in alcohol, is a dark red.

There is a spine directed forwards from the base of the first dorsal ray, along the back, which is free for more than the eighth of an inch.

From Pebas; J. Hauxwell's coll.

HOLOTAXIS MELANOSTOMUS. Cope gen. et sp. nov.

*Char. Genericus* No adipose fin; origin of dorsal fin posterior to that of the ventral. Teeth on the premaxillary, maxillary and mandibular bones, all simple conic, those of the first and last, in two rows. Suborbital bones very large; gill opening large. Scales without lateral line.

This genus is simply *Pyrrhulina* with maxillary teeth.

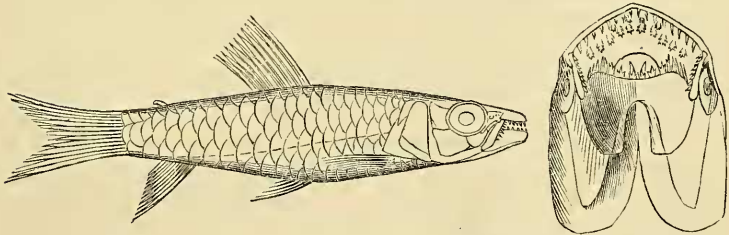
*Character specificus.* Rather elongate; depth .0125 M.; length .07 M., length of head .014 M.; width of do. behind .0065 M. Radii D. 9.; A. I. 10; V. 8. Scales 7—25. Above brownish, below yellowish; on the sides the scales with orange bases and brown edges forming longitudinal lines. A black band through the operculum and orbit round the edge of the premaxillary; another round the edge of the mandible. A black spot on the middle of the dorsal fin.

This species is evidently near the *Pyrrhulina filamentosa* of Cuv. and Val., but the caudal fin is regularly emarginate, and has not the peculiar form ascribed to that species by those authors.

Numerous specimens from Pebas, Equador, Hauxwell's coll.

PLETHODECTES ERYTHRURUS. Cope gen. et sp. nov.

*Character genericus.* Adipose fin present, dorsal short, originating



above the ventrals. Anal short. Lateral line present on the inferior row of scales; belly not compressed; gill opening wide. Teeth on the maxillary, premaxillary and dentary bones. Maxillaries in one row, simple, conic; premaxillaries in two rows, those of the external simple conic, of the inner tricuspid; mandibulars in an outer row of tricuspid teeth, and two simple conic in the middle behind them. Maxillary arch angulate, the maxillary bones extending downwards on each side of the dentary.

This genus appears to be nearest to *Piabucina* Cuv. Val. It differs in

the presence of the lateral line, and in having two series of premaxillary teeth instead of one, of which the external is simple and not tricuspid. There are also two series of teeth on the dentaries of *Piabucina*. The suborbital bones of this genus are large.

*Character specificus.* Form medium, head elongate, broad and flat above, interorbital width 2.5 times in length. Diameter of orbit nearly three times in length of head, equal to length of muzzle. Length of head one-third of total without caudal fin. Greatest depth one-fourth of same. Scales large, 1. series 6 at ventrals; transverse (above 1. line) 16. Radii, D. 12; A. 11; V. 9; caudal deeply forked.

Color light olive; top of head and muzzle, ventral, anal, and dorsal fins blackish. Caudal fin red, dusky medially.

There are three longitudinal ridges on the cranium above, of which the median is very weak. Total length 0 M.068; length to opercular margin, .0175 M.; to basis of ventral, .0285 M.; to basis of anal, .042 M.; to bases of caudal, .052 M. From Pebas, Ecuador; Hauxwell's collection.

*APHYOCHARAX FILIGERUS.* Cope sp. nov.

Head small, the length contained five times in total, without caudal fin; height 4.25 times in the same. Eye three times in length of head, a little exceeding muzzle. Dorsal fin originating half way between lines of origin of ventrals and anal. Anal long, the anterior rays much prolonged, filiform, extending backwards to the last fifth of the length of the base. Dorsal elevated; Radii, D. 10; A. 28. L.1. scales 38; tubes on a few of the anterior only; 1. tr. 12. Premaxillary teeth seven on each side, maxillaries numerous, occupying most of the margin of the bone. Color olive above, yellowish below, lower lobe of caudal blackish. Length 0M. .06.

This, the second species of this genus just described by Günther (Proc. Zool. Loc. London, 1868, 245), differs from the type species, *A. pusillus*, in the longer anal fin (there are only 18 rays in the latter), with much prolonged anterior radii, the shorter head, the more numerous maxillary teeth, &c.

From Pebas, Eastern Ecuador, Hauxwell's Collection. Dedicated to the discoverer, a successful naturalist and explorer.

*ROEBOIDES BICORNIS.* Cope sp. nov.

Radii D 11, A 51; scales 1. tr. 18—16; the back is gibbous; the outline of the front plane; the muzzle slightly descending, and overhanging the mandible; depth one-third of length, without caudal fin; length of head 3.5 times in same; eye large, 3.5 times in head; inter-orbital region narrower, convex; two horn-like teeth projecting forwards; two small ones on each side posteriorly, directed outwards; mandible with four equal conic processes; mandible with four canines; premaxillary teeth irregular, maxillaries sparse; pectorals and ventrals extending beyond basis of anal; length 0.07 M.; to ventrals .02 M.; to anal .025

M.; origins of dorsal and anal opposite.



Color pale, with a silver lateral band, and black humeral and basal caudal spot.

Pebas, Eastern Equador, Hauxwell's Collection.

This species is near the *R. myersii* Gill, M.S., but is a shallower fish, with smaller eye, and fewer horns on the upper jaw. The *Hystriodon xenodon* Reinhardt, Vidensk. Med. Kjobenhavn, 1849 37, has much larger scales.

ANACYRTUS TECTIFER. Cope sp. nov.

Radii ; D. 11 ; A. 37. Scales from basis of dorsal to basis of anal 12—10. A short, deep species ; depth 3.2 times in length, without caudal fin ; head 3.6 in the same ; eye 3.75 times in length of head ; equal interorbital width ; head elevated, front slightly concave in profile, end of muzzle descending ; scales rather large ; ventrals reaching anal fin, pectorals not Maxillary teeth numerous, equal, premaxillary series confluent, three canines on each side ; mandible with two on each side ; mandible longer than muzzle, when open.

White, without silvery lateral band ; inferior half operculum golden ; a large black spot in front of the origin of the dorsal, on the side : a black spot at the basis of caudal ; ante-orbital region punctulate ; length 0.M. 068 ; to end of maxillary .0075 M. to origin of ventral fins .0225 M. ; to origin of anal .031 M. The origin of the dorsal is in advance of the line of the origin of the anal. Its last ray is much behind the latter point.

This species is named from the fact that the free anterior margin of the nasal bones is more prolonged than in other species, and overhangs the nares and premaxillaries. The few anal radii and coloration also distinguish this fish from its allies.

Pebas, Ecuador. Hauxwell's Collection.

CYNOPOTAMUS GULO. Cope sp. nov.

Form slender ; the depth of the body near three-fourths the length of the head, four and one-third times in the total, without caudal fin. Length of head three and a quarter times in the same. Eye 3.75 times in the length of the head. Maxillary bone extending a little beyond the line of the posterior rim of the orbit. Fourteen rows of scales between origin of dorsal and lateral line. Fin radii D. 12, A. 41. The profile of the head is scarcely concave and slopes regularly to the premaxillary border. A few scattered canines form an inner premaxillary row. There is a canine at each end of each premaxillary of the outer row. The outer mandibular row consists of four equidistant canines on each side in front, and numerous small teeth behind.

Color pale. Lower half the opercle golden. A black humeral spot, and a silver lateral band extending from it to the caudal fin, at the base of which is a black spot.

Length 0M .09. To opercular margin .025. To origin dorsal (vertical line) .035. To origin of anal .044.

From Pebas, Eastern Peru. Numerous specimens from Hauxwell's Collection.

Other Characinidæ contained in the collection are, *Macrodon trahira* Spix; *Erythrinus brevicanda*, Günth; *Hydrocyon* sp. indet; *Myletes duriventris* Cuv.; *Tetragonopterus ortonii*, Gill M.S.S. Proc. A. N. Sci., Phila., 1870; *Gasteropelecus stellatus* Kner; *Chalcinus brachypomus*, C. V.; *Leporinus frederici*, Bloch; *Curinatus* sp. indet.

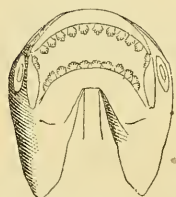
The Characins obtained at Para by De Schulte Buckow for J. Carson Brevoort's Collection, already mentioned, are *Leporinus striatus* Kner; *L. megalepis*, Günth.; *Schizodon fasciatus*, Spix; *Tetragonopterus lepidurus* Kner.; *T. fasciatus*; *T. stilbe*, Cope, *T. Gasteropelecus sterniela* L.; *Chalcinus brachypomus* C. V.; *Myletes lippincottianus*, Cope; *Serrasalmo piraya*; *Serrasalmo maculatus*, Kner. The last agrees closely with Kner's figure and description, except that the young only is spotted, and the caudal fin of young and adult are yellow-edged outside the blackish cross band.

ODONTOSTILBE FUGITIVA. Cope gen. et. sp. nov.

*Char. Gen.* Teeth in a single series on the premaxillary and dentary bones only, broadly spatulate and crenate. Anal fin elongate. Lateral line continued to the caudal fin.

This genus differs from *Chirodon* (Girard) chiefly in the complete development of the lateral line of tubules.

*Char. Spec.* D. 10, A. 24, l. 35. Transverse line at vent 11; at ventral fins 5-5. Teeth, two on each maxillary, five on each premaxillary, and six on each dentary. The premaxillaries with seven cusps each, the median more prominent. Those of the other bones with similar cusps of more equal length. Depth of body 3.5 times in length, exclusive of caudal fin. Head four times in the same, its profile convex longitudinally and transversely, with interorbital width



equal diameter of orbit. Latter 2.5 times in length of head. Caudal fin deeply forked. Ventral just in advance of below first dorsal ray. Pectoral barely reaching ventral. Olive silvery, with a silver band, dark-edged above and below, from opposite middle of pectoral fin to basis of caudal. A dark spot at latter point. Cheeks silvery. Length two inches.

Pebas, Eastern Equador. Hauxwell's Collections.

This little Characin is allied to the *Chirodon alburnus*, Gthr. (P. Z. S. Lond. 1869, 424,) but has teeth on the maxillary, fewer and differently formed on the other bones, more anal radii, different proportions, etc.

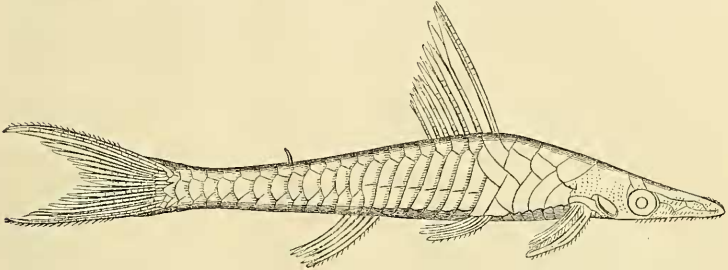
SILURIDÆ.

HYPOPTOPOMA BILOBATUM. Cope sp. nov.

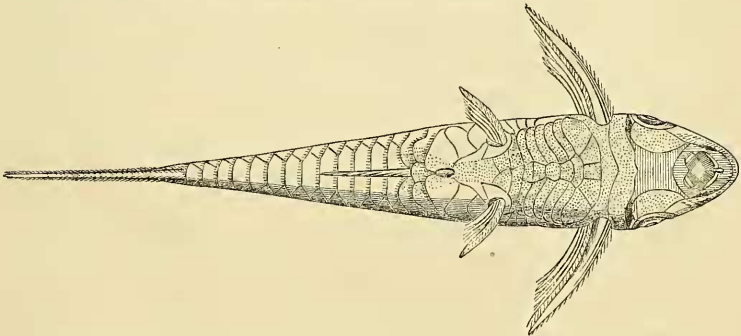
*Character.*—Form rather slender. Adipose fin reduced to a microscopic spine. Teeth numerous,  $\frac{24+23}{23}$  on each side of the mouth. Caudal fin deeply forked, with nearly equal lobes.



*Description*.—Radii, D. I. 7, A. 6, P. I. 6, V. I. 5. Two rows of plates of the lateral line to a little behind the anal fin; then one row. Transverse series 24 to caudal. Three plates between occiput and dorsal fin.



Fourteen plates across dorsal line behind dorsal fin. Sutures of vertex obliterated, but those on each side of the suture rising from the middle of the orbit are of equal width. Three plates along each canthus rostralis, with a median rostral. Temporal region rugose. Sides and muzzle below, with close, card-like spinules. Plates everywhere comb-like behind. Spines and outer radii of all the fins, spinulose. The pectoral spine is, in addition, serrate on the inner margin.



Length of head to occiput 3.5 times in total less caudalis; width behind pectorals five times, and depth at dorsal 7.5 times in the same. Orbit round, one-third of interorbital width. Pectorals to middle of ventrals; ventrals to beyond vent, but not to anal fin. Basis of dorsal twice to adipose spine (!), which is small, articulating in a groove in the summit of the interhæmal bone, which appears between the shields. First dorsal ray weak, jointed distally.

Interoperculum very large, entirely inferior. Thoracic bones covered with rugosities, separated externally. Three rows of abdominal plates, four in the first cross-row.

The lobes of the caudal fin are acute and nearly equal. Length four inches. Color olive, top of head and dorsal region darker. A black spot in the middle of the caudal fin.

This is the second representative of a remarkable genus recently described by Günther (Proc. Zool. Soc. London, 1868, 234), and which has as yet been found only in the upper Amazon and its tributaries. The opercular apparatus is so modified as to reduce the operculum to a very small bone, and to give the interoperculum an entirely inferior position and increased size. The general appearance is intermediate between that of *Hoplosternum* and *Loricaria*.

From Pebas, Equador. Hauxwell's collection, with *Callichthys asper* and the following species of *Nematognathi*.

DORAS PECTINIFRONS. Cope sp. nov.

Radii D. I. 5, A. 12; P. I. 5; V. 6. Lateral line 27. Superior and inferior face of caudal region with shields with posterior and lateral spines. Lateral plates elevated, with a prominent point posteriorly directed above and below the prominent median spine. On the anterior half the side one to three series of irregular posteriorly directed spines above the lateral series, and a few irregular ones below it. Margins of the cephalo-nuchal shield prominent all round, often recurved, rugose; pectinate above the orbits, and at the posterior projection on each side the dorsal fin. Two serrate ridges mark the premaxillary spines, and the preorbital bones are crested laterally and superiorly, the superior crest comb-like. Preopercular angle with a serrate crest; scapula serrate. Dorsal and pectoral spines elongate, both serrate before and behind, and with two spinulose ridges on each side. Humeral spine reaching last third of pectoral, with an external series of straight spines. Caudal fin rounded. Maxillary barbel not quite reaching basis of pectoral spine. No spine in adipose dorsal.

Color everywhere black, gular, thoracic, and abdominal regions white spotted. Caudal fin with a yellowish cross-bar near the extremity. Length of type specimen three inches.

Pebas, Equador. Hauxwell's collection. Allied technically to the *D. armatulus* of Cuv. and Val.

BUNOCEPHALUS ALEUROPISIS. Cope sp. nov.

Radii D. 5-6, A. 9, P. I. 4, C. 10. Base of first dorsal ray nearer end of muzzle than origin of caudal fin; its distance from former a little more than .4 of total length. Maxillary barbel extending to near the middle of the pectoral spine. Width of head at preopercula 5.66 times in length, exclusive of caudal fin. Length of caudal fin 5.75 times in total length. Length of head to operculum 6.1 times in total (without caudal). Five series of wartlets along each side of the tail. Tail wide as deep medially, compressed distally. Length four inches; greatest (scapular) width a little less than .25 of the total (with caudal fin).

Color brown, the head densely punctulated with white above. Sides and back with dark brown blotches. Dorsal fin with extremities of anal and caudals, black or blackish.

From Pebas, Eastern Equador. John Hauxwell's collection.

This species is near the *B. gronovii* Blecker, but has different radial formulæ and larger maxillary barbels, etc. In the latter the fins have, according to Günther, D. 5, A. 6, P. I. 5.

## PSEUDORHAMDIS PISCATRIX. Cope sp. nov.

Head above granular rugose, except between and in front of the prefrontals. Occipital process convex, not keeled, apex in contact with basal dorsal shield; its length exceeding a little its width at the base. Head narrow, with narrow truncate muzzle and nearly equal jaws; the width at base of pectoral spines equal length to behind orbit. Orbit 3.3 times in length of head, equal interorbital width. Radii D. I. 6, A. 12, P. I. 9, V. 6, not reaching anal. Caudal deeply forked lobes subequal. Beards very long; the maxillary reaching to near the extremity of the caudal fin, the external mentals to beyond the base of the pectorals, the inner to beyond the middle of the pectorals. The pectoral spine is serrate on both edges; the dorsal on the posterior only. The longest ray of the dorsal when depressed reaches the base of the adipose fin. The adipose subtriangular, its base one-seventh the total length, without caudal fin. Head to opercular opening 3.75 times in length to basis of caudal fin. Length five inches. Pebas.

## RHAMDIS CYANOSTIGMA. Cope sp. nov.

Radii D. I. 6, the spine not thicker than the other rays, and weaker than the pectoral; A. 12, V. 6; P. I. 8; its spine minutely serrate within and without. Top of the head smooth, or with a slight rugosity on the postfrontal region. Head to operculum a little more than .2 of length to basis of caudal fin; length to basis of dorsal one-third of the same. Depth of body 7.33 times in the same length; length of adipose fin 3.33 times in the same. Depressed dorsal not reaching adipose; pectoral reaching only .66 distance to ventrals; latter reaching half way to anal. Caudal fin very deeply furcate, lobes equal. The maxillary barbel reaches to near the end of the adipose fin. Length four inches; general form slender. Color plumbeous; head above blackish, with an iridescent blue spot above the posterior margin of the orbit on each side.

From Pebas, Equador. Hauxwell's collection.

This species is allied to the *R. dorsalis* Gill, from the same region, but is a more slender fish, with more numerous anal radii and longer barbels.

## CHROMIDIDÆ.

## CRENICICHLA CYANONOTUS. Cope sp. nov.

D. xxiv. 11, A. III. 8; scales 5-66-13. Depth of body 6.25 times in total length; length of head a little more than four times in the same. Orbit large, equal length of muzzle, 3.75 times in length of head, a little less than interorbital width. The head is thus broad and short; above quite plane. Scales of body rather large, seven rows on the cheek. End of maxillary marking anterior third of orbit. External teeth stronger. The ends of the pectoral and ventral fins mark the thirteenth dorsal spine. The longest dorsal spine equals the length of the premaxillary bone with spine. Color olive, with seven indistinct brown cross-bands directed obliquely backwards to the middle line of the side. A dark band from orbit to axilla. A black, white(?) edged spot on the upper caudal radii. Dorsal and anal fins without spots, blue at the base. Length six inches.

From the upper Marañon, near Pebas. John Hauxwell's collection.

## CRENICICHLA LUCIUS. Cope sp. nov.

Radii D. xix. 13; A. III. 10. Squamation 4—64—13. Depth of body one-seventh of total length. Length of head three and a half times in the same. Head elongate, pike-like, the mandible strongly projecting, the outer series of teeth not larger than the others. Orbit, diameter less than length of muzzle, nearly five times in length of head, equal inter-orbital width. Length of longest dorsal spine three-fourths that of the premaxillary bone with spine. Scales large, eight rows on the cheek. Maxillary bone reaching the anterior fourth of the orbit. Ventral and pectoral fins marking the eleventh dorsal spine.

Color olivaceous, above brown. A darker band from muzzle to opercular angle. A black spot *at base* of caudal radii, edged with yellow. Dorsal and anal fins unspotted. Length six inches, width of head behind .75 inch.

This species is near the *C. lacustris* of Castelnau's fine work, and differs in the following points. The latter is a less elongate species, the depth being only one-sixth the length. The scales are less numerous, counting 4—51—11. There is a brown spot on the middle of the dorsal fin, and some longitudinal shades on the posterior part not found in the *C. lucius*.

Both species were sent by John Hauxwell from the tributaries of the Upper Maranon, in Equador.

## ACARA FLAVILABRIS. Cope sp. nov.

Three series of scales on the cheek. Radii D. xvi. 10. A. III. 8 squamation 3—26—9. Depth 2.25 times, head three times in length without caudal fin. Orbit, diameter a little exceeding muzzle, one-third length of head; inter-orbital width two-fifths the same. The length of the longest dorsal spine is equal to that of the muzzle.

Color brown, several darker cross shades across the dorsal region; a large black ocellus on lateral line, No other spots. Fins dusky. Lower lip yellow, Total length four inches; depth of head 1.1 inch. Front slightly convex in profile.

From near Pebas, Ecuador, John Hauxwell's Collections. It was associated with several specimens of *Mesops taeniatus* Günth. (Catal. B. M. iv. p. 312), from the same locality. In the same collection occurred *Rivulus micropus* Steind. var., *Sternopygus macrurus*, *S. virescens* and *Carapus fasciatus*.

## TETRAODONTIDÆ.

## TETRAODON PSITTACUS L.

*Cheilichthys* (Müll). Steind. Verh. Zool. Bot. Ver. Vienna 18, p. Tab.

This species was brought by Natterer from some of the fresh waters of Brazil, according to Steindachner. It occurs in the present collection from Equador, from a point 2,300 miles from salt water.

## EXPLANATION OF WOOD CUTS.

Fig. 3. *Myletes lippincottianus*, Cope, mouth showing dentition.

Fig. 4. *Odontostilbe fugitiva*, Cope, *ibid*.

Fig. 5. *Stethaprion erythroptis*, Cope, natural size; 5a, mouth with dentition.

Fig. 6. *Plethodectes erythrurus*, Cope, natural size; 6a, mouth with dentition.

Fig. 7. *Ræboides bicornis*, Cope, mouth with dentition.

Fig. 8. *Hypoptopoma bilobatum*, Cope, natural size; 8a, same seen from below.